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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,218	07/07/2003	Arno Jan Blecker	081468-0304499	7059

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EXAMINER

NGUYEN, HUNG

ART UNIT PAPER NUMBER

2851

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,218

Applicant(s)

BLEEKER ET AL.

Examiner

Hung Henry V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10, 12-18 and 20 is/are rejected.
- 7) ☒ Claim(s) 8, 11 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 9-10, 12-17, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hutchinson (U.S.Pat. 6,617,082).

With respect to claims 1-5, and 10, Hutchinson discloses an EUV lithography system(see col.2, line 46) comprising all limitations of the instant claim such as: a radiation system, a mask stage for holding a programmable mask, a substrate stage for holding a substrate and a projection optical system for projecting a predetermined pattern formed on the mask onto the substrate (it is noted that although, Hutchinson does not specifically disclose these claimed elements, these features are inherent teachings of an EUV lithography system and must be present for the EUV lithography system to function as intended.) wherein the programmable mask includes a plurality of reflective elements (see col.2, lines 48-50), and each reflective element including upper and lower distributed Bragg reflectors (330, 320) having a separation relation selectable from among at least a first separation and a second separation (see 3a, 3b) and wherein when the first separation is selected, a reflectivity of the reflective element at a wavelength of the projection

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beam is relative low, and when the second separation is selected, a reflective of the reflective element at a wavelength of the projection beam is relatively high (see col.2, lines 58-62).

As to claim 4, the difference in the distance between a reflecting layer of the upper distributed Bragg reflector and a reflecting layer of the lower distributed Bragg reflector between the first and second separations relation is substantially equal to one-quarter of a wavelength of the projection beam (see col.3, lines 35-38).

As to claim 6, Hutchinson disclose a driver configured to set a gap between the first and second separation relations (see claim 15 of Hutchinson).

As to claims 7 and 9, Huchinson discloses the driver including a piezoelectric element, and wherein at least one of the plurality of reflective element is configured to use an electrostatic force to adjust the gap between the upper and lower distributed Bragg reflectors. (see col.3, lines 25-32).

With respect to claims 12-15, 16-18 and 20, the method claims are inhering teachings in existence of the above EUV lithography system.

Allowable Subject Matter

3. Claims 8, 11, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: while the prior art of record teaches an electros tactically controllable actuator having a commonality in area between the actuation region and a stationary electrode being selected to

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produce controlled and stable displacement of the deflection region over a displacement range extending to a specified point in the actuation gap when an actuation voltage is applied between the actuation region and the stationary electrode but the prior art of record either alone or in combination, neither discloses nor makes obvious the combination of a lithographic projection apparatus comprising, among other features, a piezoelectric element, or at least two among the set of reflective elements as recited in the instant claims.

Prior Art Made of Record

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sweatt et al (U.S.Pat. 5,870,176); Fries (U.S.Pat. 6,544,698) disclose maskless lithography systems, and Johnson (U.S.Pat. 6,188,519) discloses bigrating light valve, each of which comprises substantially all elements as recited in the instant application.

Hung et al (U.S.Pat. 6,329,738) discloses precision electrostatic actuation and position and has been cited for technical background.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 571-272-2112. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hung Henry V Nguyen
Primary Examiner
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hvn
6/1/04